

- (a) a first module including a mountable base mountable on the marine vessel and containing electronics for receiving data from data sensors located on the marine vessel and for writing data to a memory module;
- (b) a removable memory module removably coupled to said first module, said memory module including
  - (i) an outer housing including an inner cavity for containing a solid state memory;
  - (ii) a cover for said outer housing;
  - (iii) a thermal insulator located within said inner cavity defining at least a portion of a second interior cavity, with said solid state memory being located within said second inner cavity; and
  - (iv) a boiler located within said second interior cavity including a containment compartment for containing a thermal mass, a protective compartment within which said solid state memory is located and means for interconnecting said containment compartment and said protective compartment, wherein

said means for interconnecting, when open, provides a passageway between said containment compartment and said protective compartment.

Claim 48 (New Claim) The apparatus as set forth in claim 47 wherein solid state memory includes BGA memory.

Claim 49 (New Claim) The apparatus as set forth in claim 47 wherein said solid state memory is stacked memory.

Claim 50 (New Claim) The apparatus as set forth in claim 47 wherein said boiler includes a cover plate which covers said protective compartment, said cover plate defines a through hole spaced apart from its edge, and said solid state memory is coupled to a cable which extends through said through hole.

Claim 51 (New Claim) The apparatus as set forth in claim 50 wherein said through hole is substantially circular.

Claim 52 (New Claim) The apparatus as set forth in claim 50 wherein said cover plate is press fit to said boiler.

Claim 53 (New Claim) The apparatus as set forth in claim 47 wherein said thermal mass includes a phase change material (PCM).

Claim 54 (New Claim) The apparatus as set forth in claim 53 wherein said PCM utilizes the energy absorption from vaporization to absorb heat.

Claim 55 (New Claim) The apparatus as set forth in claim 53 wherein said PCM is water.

Claim 56 (New Claim) The apparatus as set forth in claim 55 wherein said water is contained in a dry material which inhibits the water from freezing or expanding.

Claim 57 (New Claim) The apparatus as set forth in claim 56 wherein said dry material comprises sponge, silica, polyacrylamide, calcium silicate or pottery clay.

Claim 58 (New Claim) The apparatus as set forth in claim 47 wherein said thermal mass is a dry powder formed by combining water and silica.

Claim 59 (New Claim) The apparatus as set forth in claim 47 wherein said thermal mass absorbs shock.

Claim 60 (New Claim) The apparatus as set forth in claim 59 wherein said thermal mass is a gel formed by combining water and polyacrylamide.

Claim 61 (New Claim) A boiler as set forth in claim 47 further comprising a fusible valve that opens at a predetermined temperature to allow said thermal mass to flow through said passageway.

Claim 62 (New Claim) A boiler as set forth in claim 61 wherein said fusible valve comprises at least one thermal vent plug which is released at a predetermined temperature.

Claim 63 (New Claim) A boiler as set forth in claim 62 wherein said thermal vent plug comprises wax, paraffin, a bismuth alloy or electrical solder.

Claim 64 (New Claim) The apparatus as set forth in claim 57 wherein said cover for said outer housing is coupled to said outer housing with a snap ring.

Claim 65 (New Claim) The apparatus as set forth in claim 64 wherein said cover for said outer housing is coupled to said outer housing with two snap rings.

Claim 66 (New Claim) The apparatus as set forth in claim 47 wherein said outer housing withstands a penetration of a 100mm 250kg projectile at three meters.

Claim 67 (New Claim) The apparatus as set forth in claim 47 wherein said outer housing will withstand a 50g's, 11 ms half sine shock.

Claim 68 (New Claim) The apparatus as set forth in claim 47 wherein said outer housing will withstand an immersion of 6,000 meters depth.

Claim 69 (New Claim) The apparatus as set forth in claim 47 wherein said solid state memory is protected from temperatures on the order of 260 degrees C for approximately ten hours.